In the Claims:

Please cancel claims 1 to 3 and 29 to 40.

Claims 5 to 28 have been amended and claims 43 to 77 have been added. Claims 4 to 28 and 41 to 77 are now pending.

Amended claims 5 to 28 and new claims 43 to 79 are as follows:

5. [Amended] The protein of claim 4 having an amino acid sequence substantially the same as set forth in SEQ ID NO: 14 [BRV].

6. [Amended] The protein of claim 4 having the amino acid sequence set forth in SEQ ID NO: 14 [BRV].

7. [Amended] An antibody raised against the protein of claim 43.

8. [Amended] An antibody raised against the protein of claim 4.

9. [Amended] An isolated nucleic acid encoding the protein of claim 43.

10. [Amended] An isolated nucleic acid according to claim 9 having a contiguous nucleotide sequence substantially the same as:

nucleotides 25-1607 of SEQ ID NO: 1 [ARV1],

nucleotides 25-1607 of SEQ ID NO: 5 [ARV2],

nucleotides 27-1579 of SEQ ID NO: 9 [NBV], or

variations thereof which encode the same amino acid sequence, but employ different codons for some of the amino acids, or splice variant nucleotide sequences thereof.

11. [Amended] An isolated and purified nucleic acid, or functional fragment thereof encoding the protein of claim 43, wherein the nucleic acis is selected from the group consisting of:

(a) DNA encoding the amino acid sequence set forth in SEQ ID NO: 2, SEQ ID NO: 6 or SEQ ID NO: 10, or

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(b) DNA that hybridizes to the DNA of (a) under moderately stringent conditions, wherein said DNA encodes a biologically active fusion protein, or

(c) DNA degenerate with respect to either (a) or (b) above, wherein said DNA encodes a biologically active fusion protein.

12. [Amended] An isolated nucleic acid according to claim 9 operatively associated with an inducible promoter.

13. [Amended] An isolated nucleic acid encoding the protein of claim 4.

14. [Amended] The isolated nucleic acid of claim 13 having a contiguous nucleotide sequence substantially the same as:

nucleotides 25-832 of SEQ ID NO: 13 [BRV], or

variations thereof which encode the same amino acid sequence, but employ different codons for some of the amino acids, or splice variant nucleotide sequences thereof.

15. [Amended] An isolated and purified nucleic acid, or functional fragment thereof encoding the protein of claim 4, wherein the nucleic acid is selected from the group consisting of:

(a) DNA encoding the amino acid sequence set forth in SEQ ID NO: 14, or

(b) DNA that hybridizes to the DNA of (a) under moderately stringent conditions, wherein said DNA encodes a biologically active fusion protein, or

(c) DNA degenerate with respect to either (a) or (b) above, wherein said DNA encodes a biologically active fusion protein.

16. [Amended] The isolated nucleic acid of claim 13 operatively associated with an inducible promoter.

17. [Amended] A cell containing the protein of ~~claim~~ 43.

18. [Amended] The cell containing the protein of claim 4.

19. [Amended] The cell containing the nucleic acid of claim 9.

20. [Amended] The cell containing the nucleic acid of claim 12.

21. [Amended] The cell containing the nucleic acid of claim 13.

22. [Amended] The cell containing the nucleic acid of claim 16.

23. [Amended] Liposomes containing the protein of claim 43.

24. [Amended] Liposomes containing the protein of claim 4.

25. [Amended] Liposomes containing the nucleic acid of claim 9.

26. [Amended] Liposomes containing the nucleic acid of claim 13.

27. [Amended] A method for producing the protein of claim 43, said method comprising the step of expressing a nucleic acid encoding said protein in a suitable host.

28. [Amended] A method for producing the protein of ~~claim 4~~, said method comprising the step of expressing a nucleic acid encoding said protein in a suitable host.

43. [New] An isolated protein which:
(a) is a membrane fusion protein;
(b) comprises a transmembrane domain; and
(c) has at least 33% amino acid sequence identity to a protein which:
  (i) is encoded by a polynucleotide from the genome of Reoviridae;
  (ii) is a membrane fusion protein, and
  (iii) has a molecular weight of about 11 kDa.

44. [New] The isolated protein of ~~claim~~ 43 which:
(a) is encoded by a polynucleotide from the genome of Reoviridae; and
(b) has molecular weight of about 11 kDa.

45. [New] The protein of claim 43 which has less than 100 amino acids or has about 100 amino acids.

46. [New] The protein of ~~claim 43~~ which contains a cluster of positive amino acid residues, wherein the cluster is located on the C-terminal side of the

transmembrane domain and comprises at least 4 positive residues within the 20 residues flanking the transmembrane domain at the C-terminal side.

47. [New] The protein of claim 43 which lacks a signal peptide.

48. [New] The protein of claim 43 which contains 4 cysteine residues at conserved positions relative to SEQ ID NO:2 (ARV1); SEQ ID NO:6 (ARV2); and SEQ ID NO:10 (NBV).

49. [New] The isolated protein of claim 43 which has at least 33% amino acid sequence identity to a polypeptide selected from the group consisting of:
(a) a polypeptide of SEQ ID NO:2 (ARV1);
(b) a polypeptide of SEQ ID NO:6 (ARV2); and
(c) a polypeptide of SEQ ID NO:10 (NBV).

50. [New] The protein of claim 49 which has at least 33% amino acid sequence identity to the polypeptide of SEQ ID NO:2 (ARV1).

51. [New] The protein of claim 49 which has at least 33% amino acid sequence identity to the polypeptide of SEQ ID NO:6 (ARV2).

52. [New] The protein of claim 49 which has at least 33% amino acid sequence identity to the polypeptide of SEQ ID NO:10 (NBV).

53. [New] The protein of claim 49 which comprises a cluster of positive amino acid residues, wherein the cluster is located on the C-terminal side of the transmembrane domain and comprises at least 4 positive residues within the 20 residues flanking the transmembrane domain at the C-terminal side.

54. [New] The protein of claim 49 which lacks a signal peptide.

55. [New] The protein of claim 49 which comprises 4 cysteine residues at conserved positions relative to SEQ ID NO:2 (ARV1); SEQ ID NO:6 (ARV2); and SEQ ID NO:10 (NBV).

56. [New] An isolated protein comprising the sequence selected from the group consisting of: SEQ ID NO:2(ARV1), SEQ ID NO:6(ARV2) and SEQ ID NO:10(NBV).

57. [New] An isolated protein which:

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(a) is a membrane fusion protein;
(b) comprises a transmembrane domain;
(c) has a molecular weight of about 15 kDa; and
(d) is encoded by a polynucleotide from the genome of Reoviridae.

58. [New] A method to promote membrane fusion, said method comprising the step of contacting the membranes to be fused with the protein of claim 43 for a time and under conditions effective to promote membrane fusion.

59. [New] A method to promote membrane fusion, said method comprising the step of contacting the membranes to be fused with the protein of claim 57 for a time and under conditions effective to promote membrane fusion.

60. [New] A method to promote membrane fusion, said method comprising the step of contacting the membranes to be fused with a membrane fusion protein for a time and under conditions effective to promote membrane fusion, wherein the membrane fusion protein is encoded by a polynucleotide of the genome of a fusogenic member of the family Reoviridae or is substantially the same as the membrane fusion protein encoded by a polynucleotide of the genome of a fusogenic member of the family Reoviridae.

61. [New] The method of claim 60 wherein the fusogenic member of the family Reoviridae is selected from: ARV, NBV and BRV.

62. [New] The method of claim 60 wherein the membranes are cell membranes, liposome membranes or proteoliposome membranes.

63. [New] The method of claim 60 wherein the membranes are the cell membrane of an immortalized myeloma cell and the cell membrane of a primary B cell or T cell.

64. [New] The method of claim 63 wherein the immortalized myeloma cell is human or mouse, and wherein the primary B cell or T cell is a purified spleen cell from an immunized mammal.

65. [New] The method of claim 60 wherein the membranes to be fused are the cell membrane of an immortalized myeloma cell and the cell membrane of a primary B cell or T cell, and wherein the membrane fusion protein has an amino acid sequence selected from any one of: SEQ ID NOs: 2, 6, 10, 14, and substantially the same sequences thereof.

66. [New] A method to promote membrane fusion between a first membrane and a second membrane, said method comprising:
(a) introducing a fusogenic protein, in an amount sufficient to effect membrane fusion, into the first membrane; and then,
(b) contacting the second membrane with the first membrane for a time and under conditions effective to promote membrane fusion between the first membrane and the second membrane;

wherein the first membrane is selected from the group consisting of:
(i) a liposome membrane;
(ii) a proteoliposome membrane; and
(iii) a membrane of a cell;

and wherein the fusogenic protein either:
(i) is encoded by a polynucleotide of the genome of Reoviridae; and
(ii) has a molecular weight of about 11 kDa; and
(iii) is less than 100 amino acids or is about 100 amino acids;
or wherein the fusogenic protein:
(i) is encoded by a polynucleotide of the genome of Reoviridae; and
(ii) has a molecular weight of about 15 kDa; and
(iii) is less than 150 amino acids or is about 150 amino acids.

67. [New] The method according to claim 66 wherein the first membrane is the liposome membrane or the proteoliposome membrane.

68. [New] The method according to claim 67, wherein the step of introducing the fusogenic protein comprises incorporating the fusogenic protein into the liposome membrane or the proteoliposome membrane.

69. [New] The method according to claim 66 wherein the first membrane is the cell membrane.

70. [New] The method according to claim 69, wherein the step of introducing the fusogenic protein comprises the step of introducing into the cell an expression vector comprising a polynucleotide which encodes the fusogenic protein, wherein the vector is free of full-length reovirus genome.

71. [New] A method to promote membrane fusion between a first membrane and a second membrane, said method comprising contacting the first or

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second membrane or both membranes with an effective amount of a protein-liposome complex for a time and under conditions effective to promote membrane fusion between the first membrane and the second membrane, wherein the protein-liposome complex contains a fusogenic protein; and

wherein the fusogenic protein either:
(i) is encoded by a polynucleotide of the genome of Reoviridae;
(ii) has a molecular weight of about 11 kDa; and
(iii) is less than 100 amino acids or is about 100 amino acids;
or wherein the fusogenic protein:
(i) is encoded by a polynucleotide of the genome of Reoviridae;
(ii) has a molecular weight of about 15 kDa; and
(iii) is less than 150 amino acids or is about 150 amino acids.

72. [New] The method according to claim 66 wherein the fusogenic protein comprises an amino acid sequence selected from any one of: SEQ ID NOs: 2, 6, 10 and 14.

73. [New] The method according to claim 67 wherein the fusogenic protein comprises an amino acid sequence selected from any one of: SEQ ID NOs: 2, 6, 10 and 14.

74. [New] The method according to claim 68 wherein the fusogenic protein comprises an amino acid sequence selected from any one of: SEQ ID NOs: 2, 6, 10 and 14.

75. [New] The method according to claim 69 wherein the fusogenic protein comprises an amino acid sequence selected from any one of: SEQ ID NOs: 2, 6, 10 and 14.

76. [New] The method according to claim 70 wherein the fusogenic protein comprises an amino acid sequence selected from any one of: SEQ ID NOs: 2, 6, 10 and 14.

77. [New] The method according to claim 71 wherein the fusogenic protein comprises an amino acid sequence selected from any one of: SEQ ID NOs: 2, 6, 10 and 14.